"a commitment to quality"

HYDRAULIC SUCKER ROD TONG

M20, M40, M50, M75

OPERATION AND SERVICE MANUAL

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This Operating Manual is valid for the following serial numbers:

27841	27841-1	27841-5	27841-75	27841-101
27841-102	27841-103	27841-104	27841-105	

OSM-011
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TABLE OF CONTENTS

PAGE

GENERAL DESCRIPTION 2
HYDRAULIC SUCKER ROD TONG ILLUSTRATION 3
INSTALLATION OF THE HYDRAULIC SUCKER ROD TONG 4
SUCKER ROD DISPLACEMENT VALUES (FIGURE 1) 5
OPERATION OF THE TONG 6-7
SAFETY TOOL INSTALLATION AND REMOVAL 8
ILLUSTRATIONS (FIGURES 2 – 8) 9-10
SERVICE AND REPAIR 11
TROUBLESHOOTING 12
ILLUSTRATIONS (FIGURES 10 – 11) 13
MAINTENANCE 14
HOW TO ORDER PARTS 15
ROD TONG ILLUSTRATIONS 16-17
ROD TONG REPLACEMENT PARTS LIST 18-21
INNER RING TUBING ASSEMBLIES 22-23
TORQUE CHART AND SPECIFICATIONS GRAPH 24
ROD TONG MOTOR AND PIPING RELIEF VALVE OPERATION 25-26
RECOMMENDED SPARE PARTS LIST FOR ONE YEAR 27

GENERAL DESCRIPTION

This manual contains instructions on maintenance and operations of Oil Country Manufacturing, Inc. Hydraulic Sucker Rod Tong (Models M-20, M-40, M-50, and M-75). The tong has a balanced weight distribution that is easily handled by one man. Front or back throttle handles control both the speed and the direction of the rotation. The safety door gates provide quick on-off action, eliminating hand latching.

The operator should thoroughly familiarize himself with the contents of this manual before operating, making adjustments, or performing maintenance procedures on this equipment.

SPECIFICATIONS

Pump Size:
Minimum output of 20 to 30 gallons per minute and 2000 PSI maximum pressure is recommended.

Reservoir capacity:
A 50-gallon hydraulic oil tank containing a minimum of 35 gallons of specified hydraulic oil.

Hydraulic Fluid Requirements:
Viscosity Range: 150 to 300 S.S.U. @ 100 degrees F. (Maximum at starting temperature - 3000 S.U.) viscosity index 80 or above.

Supply Hoses:
The supply and return hoses should be a minimum of 1" diameter.

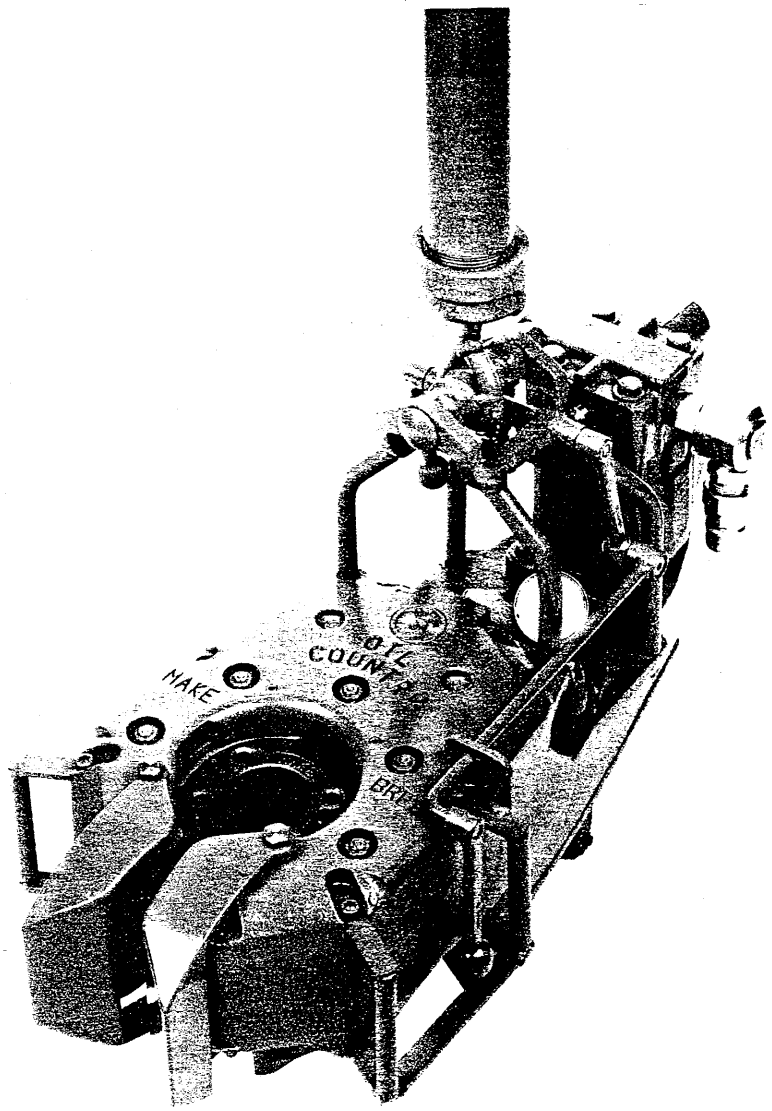
STANDARD HYDRAULIC ROD TONG ASSEMBLIES

PART NUMBER	DESCRIPTION
27841	STANDARD M20 ROD TONG ASSY
27841-1	STANDARD M40 ROD TONG ASSY
27841-5	STANDARD M50 ROD TONG ASSY
27841-75	STANDARD M75 ROD TONG ASSY

ROD TONG ASSEMBLY WITH RELIEF VALVE OPERATIONS

PART UMBER	DESCRIPTION
27841-101	M20 ROD TONG ASSY WITH RELIEF VALVE OPERATIONS
27841-102	M40 ROD TONG ASSY WITH RELIEF VALVE OPERATIONS
27841-103	M50 ROD TONG ASSY WITH RELIEF VALVE OPERATIONS
27841-104	M75 ROD TONG ASSY WITH RELIEF VALVE OPERATIONS
27841-105	M75 ROD TONG ASSY FOR SATELLITE CONTROL BOX

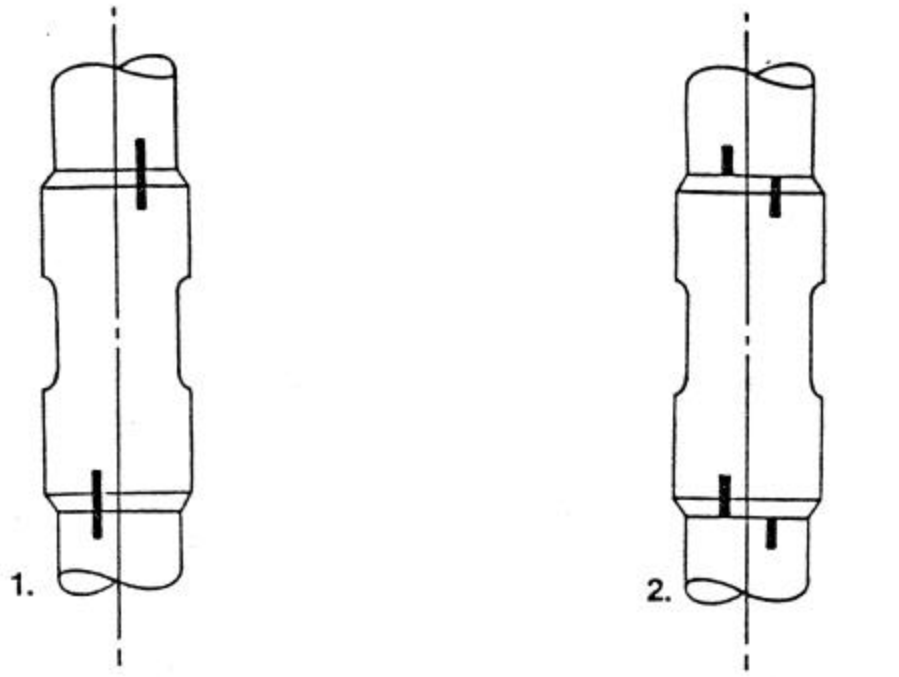
HYDRAULIC SUCKER ROD TONG
MODELS M-20, M-40, M-50, AND M-75



INSTALLATION OF THE HYDRAULIC SUCKER ROD TONG MODELS M-20, M-40, M-50, AND M-75

1. Suspend the Hydraulic Sucker Rod Tong on a 9/16" wire line from a point high enough to allow the tong to swing easily around the work area. The line may be attached to a fixed eye or over a sheave for additional counterbalance.
2. Install hoses with the pressure hose on the right hand side as viewed from the back of the tong. Ensure that couplings are completely engaged and free of debris.
3. Check inner ring to ensure proper size, rotation, and installation of inner ring (refer to illustration on page 9 for installation and removal). Check back-up wrench for proper size and to ensure that wrench is supported by back-up support springs.
4. Set relief valve (hydraulic pressure) for breakout of sucker rods. Adjust hydraulic pressure control valve to maximum output of 2000 PSI.
5. Install safety line to eye on rear of tong, attach opposite end to rig or secure tie down. **WARNING:** ***Failure to do so will cause bodily harm.***
6. Before attempting to make-up sucker rod, it is very important to adjust the hydraulic control valve to minimum pressure setting to avoid damage to coupling by over-torquing. Slowly adjust pressure to reach specified PSI per chart on page 24. Torque must be adjusted for each rod size prior to make-up. The torque gauge on the rod tong is used for reference only. Pressure must be regulated by PSI gauge on well servicing unit or pressure relief valve. To ensure proper make-up of coupling, refer to the sucker rod displacement chart on page

Figure 1



Hand tight joint

made-up joint

SUCKER ROD JOINTS CIRCUMFERENTIAL DISPLACEMENT VALUES

	1	2	3
Rod Size	New String of API Grade D Rods	*New String of API Grade C and K Rods	Subsequent Installation of API Class C, K and D
1/2"	6/32	4/32	4/32
5/8"	8/32	6/32	6/32
3/4"	9/32	7/32	7/32
7/8"	11/32	9/32	9/32
1"	14/32	12/32	12/32
1-1/8"	18/32	16/32	16/32

A.P.I. DISPLACEMENT CHART

OPERATION OF THE TONG

The Hydraulic Sucker Rod Tong can be operated from the left side, right side, or front of unit. It is recommended to operate the tong from the front position to ensure proper alignment of pin and couplings. All functions of this unit are easily controlled by the operator, using the throttle control (ref. 109 on parts illustration, page 16).

After installation of the inner ring assembly, rotate the jaws to the “open” position. Observe the bottom square on the sucker rod, guide the tong onto the rod so that the back-up wrench easily slides onto the bottom square. This can be achieved by slightly lifting up on the front of the tong as you guide it onto the sucker rod. The jaws will automatically adjust to grip the top square.

MAKE-UP

1. Inspect the power tong to ensure that hydraulic fluid is at operating temperature. This can be accomplished by running the unit continually for a short period of time.
2. Ensure that the pressure relief valve is set on minimum output, and adjust to low side of recommended displacement value.
3. Make-up first coupling to hand tight position (see Figure 1). Scribe a vertical line on the top and bottom of coupling.
4. Back off coupling approximately four (4) turns, positioning the sucker rod tong on the tong. Activate the throttle handle to fully depressed position.
5. Remove the tong and measure the displacement. Compare the displacement with A.P.I. displacement recommendations for type and size of coupling to be run. Increase or decrease the tong operating pressure to achieve manufacturer’s recommended displacement.

CHANGING DIRECTION OF ROTATION

1. Checking Rotation Direction:
   I. The inner ring rotates in the direction indicated on the top and bottom of the inner ring assembly. The side marked "MAKE" is for making up rods. The side marked "BRAKE" is for breaking out rods. The jaw points in the direction that the rods will turn (ref. Figure 6 and 7, page 9).
2. Removing the Inner Ring:
   I. Rotate the tong to close jaws, stopping rotation when the opening of the inner ring lines up with the opening in the tong case (Figure 8 and 9). Slightly reverse rotation in order to free inner ring for removal (approximately 1" turn only). Remove the inner ring using inner ring safety tool. NOTE: Do not reach inside the tong with hands to remove inner ring.
3. Replacing the Inner Ring:
   I. After removing the inner ring, detach the safety tool, turn inner ring over and attach safety tool.
   II. Rotate tong 180 degrees.
   III. Carefully align outer gear roller in center of brake drum opening (Figure 8 and 9). Note that the outer gear roller is in the center of both brake drum and opening in the tong case.
   IV. Install inner ring, aligning opening of inner ring with brake drum opening (Figure 4).
   V. When inner ring is in place, it has dropped down over the brake drum pins. The top surface should be approximately 1/2" below the top of the frame plate. Pull back on inner ring safety tool to remove.

NOTE: THE OPENING OF THE OUTER GEAR MUST POINT IN THE DIRECTION OF "MAKE" WHEN INSTALLING INNER RING FOR MAKE, AND OPPOSITE FOR BRAKE.

4. Indexing Knob:
   I. Inner ring assemblies are manufactured with an indexing knob on the side (see Figures 6 and 7). The purpose for this is to prevent installing the inner ring upside down or out of time with the outer ring. It also makes it necessary to line up the opening in the tong case, as described.

SAFETY TOOL INSTALLATION AND REMOVAL

The Oil Country inner ring safety tool is designed to install and remove the rod tong inner ring assembly when changing rod sizes. This tool permits alignment of the inner ring and brake drum to be achieved by actuating the hydraulic controls.

OPERATION:

1. Install the safety tool on the inner ring by pushing down firmly until latches are secure on the inner ring (See Figure 2).
2. Rotate the tong until the outer ring gear rollers are in the center of the opening in the inner ring.
3. Remove inner ring (See Figure 3).
4. Firmly hold inner ring on a flat surface and push quickly on the safety tool to release latches.
5. Turn the inner ring over to the opposite side and attach the safety tool.
6. Rotate the tong 180º to the opposite direction. Install the inner ring (See Figure 4).
7. Push or pull the safety tool to release (See Figure 5).
8. Rotate the jaws to the open position.

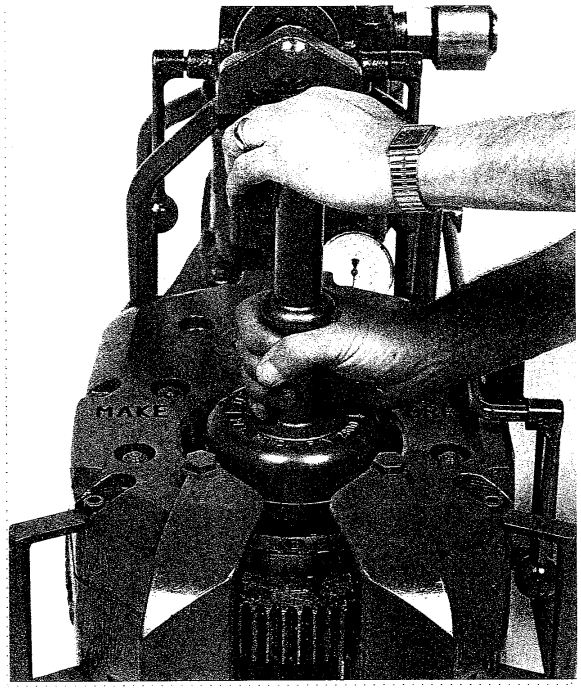


Fig. 2
Installing Safety Tool

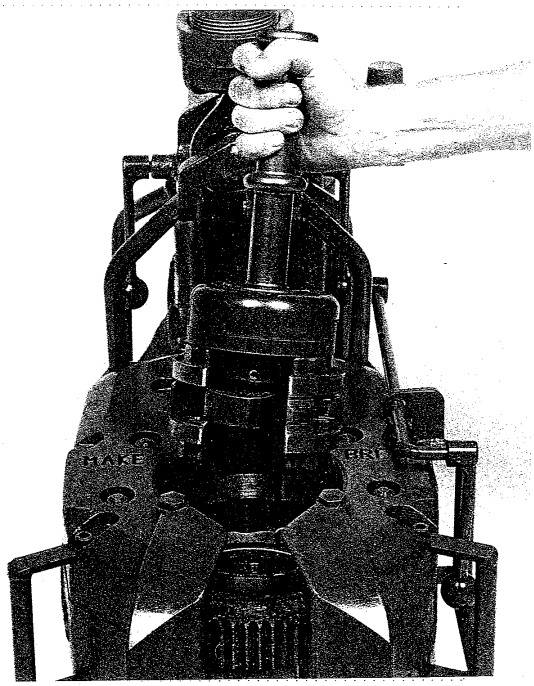


Fig. 3
Removing Inner Ring

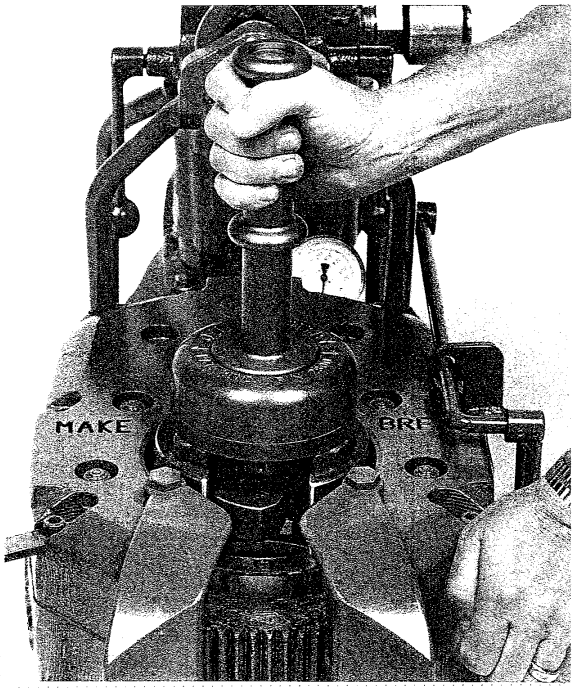


Fig. 4
Installing Inner Ring

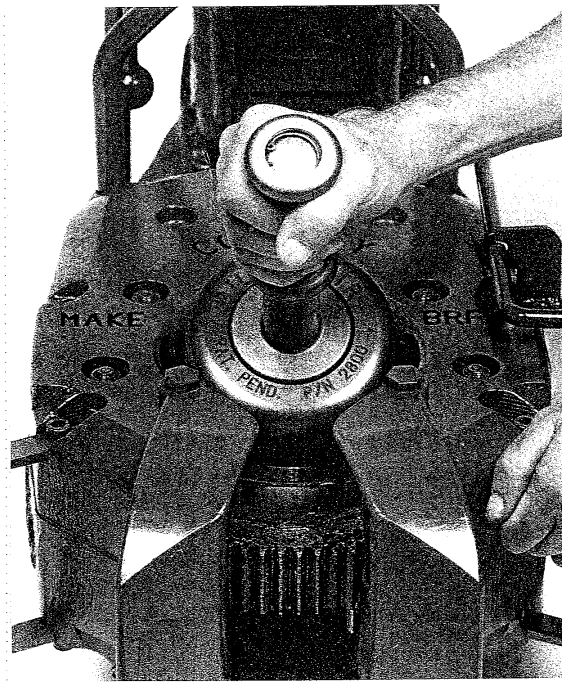


Fig. 5
Removing Safety Tool

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Fig. 6
Installing ring make
index knob

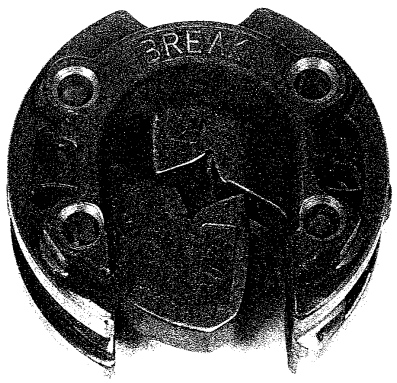

Fig. 7
Inner ring brake
index knob

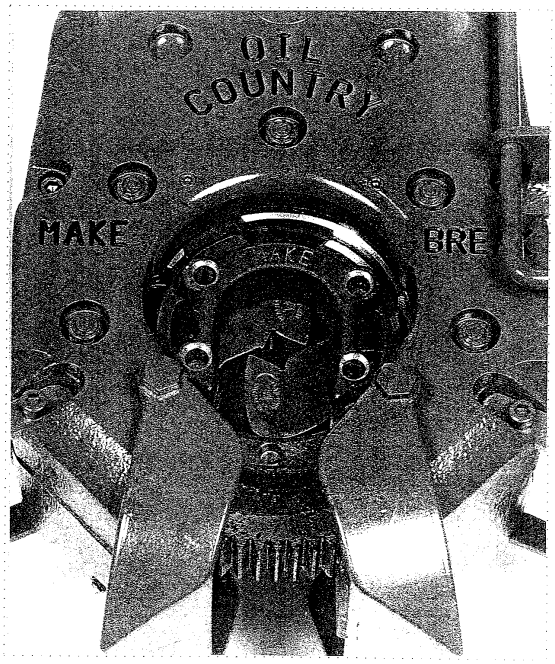

Fig. 8
Rod Tong set
Making up rods

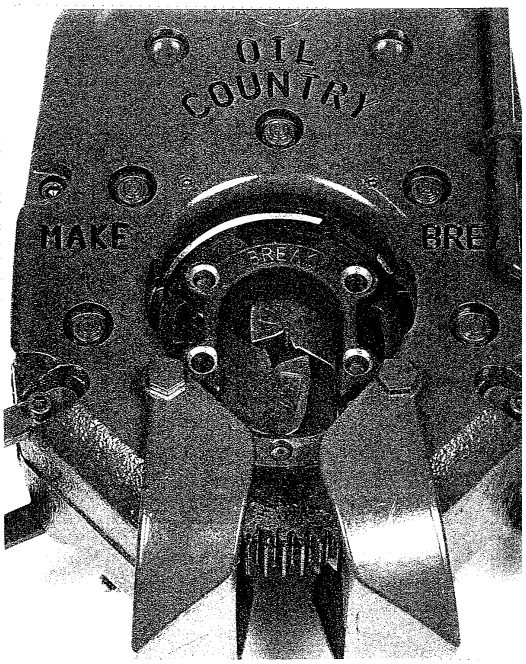

Fig. 9
Rod tong set
Brake out rods

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SERVICE AND REPAIR

WARNING: DISCONNECT TONG HYDRAULIC HOSES PRIOR TO INSPECTION OR MAINTENANCE. FAILURE TO DO SO CAN RESULT IN INJURY OR LOSS OF LIMBS.

DISCONNECTING HOSES:

1. Shut off hydraulic power prior to attempting to disconnect hoses. If pressure cannot be shut off, disconnect pressure side first and return line last. Failure to do so can result in damage to personnel and equipment.
2. Servicing Torque Indicator Gauge:
   - I. This torque gauge should be tested periodically. The torque indicator is a closed system and occasionally must be refilled with hydraulic oil to ensure its accuracy. Oil is required when the load cell piston will not hold the back-up wrench away from the bottom cover plate when under a load. When load cell piston is full of fluid, it will protrude about 3/8" from the piston housing.
   - II. To add oil, turn the tong on its side with the fill hole on the high side. Remove filler plug with an allen wrench. Push the load cell piston back until it bottoms out against the seal. Add hydraulic oil. Replace plug.

TROUBLESHOOTING:

Problem	Solution
Tong is out of time:	A tong is out of time when the brake drum does not line up with the opening on the tong case. If the brake drum is out of alignment, the inner ring assembly cannot be installed properly. To re-align the drum, use a short piece of wood (2" X 4") or insert two metal punches in the brake drum pinholes and pry around to correct position. Refer to Figures 10 and 11. ***NOTE: CHECK BRAKE DRUM AND BAND FOR WEAR. REPLACE IF NEEDED***.
Tong jumping out of time:	The tong can jump out of time if the brake cover plate becomes loose, allowing the break drum to drop down and disengage from the inner ring or the roll pins in the brake drum become worn or are driving too far in the brake drum. The pins should extend 1/2" above the brake drum to allow the inner ring to index.
Jaws fail to engage:	Failure of the jaws to grip the rods can be caused by an excessively worn brake band, by interference between the jaws and the inner ring or outer gear or both. If there is interference between the jaws and the outer ring, something is probably holding the inner ring too high, causing the jaws to hit or drag the inside top of the outer ring. This can be caused by: ? The brake drum not being positioned against the brake cover plate. ? A brake drum pin sticking up too high. ? The inner ring hinge pin is not spaced correctly in the inner ring, preventing the brake drum pin from engaging correctly.
Oil Leaking from Weep Hole:	An oil weep hole is provided under the frame beneath the motor. It prevents the case from filling up with hydraulic oil if the motor shaft seal leaks or blows out. Check motor and seals for excessive wear and replace, as necessary.

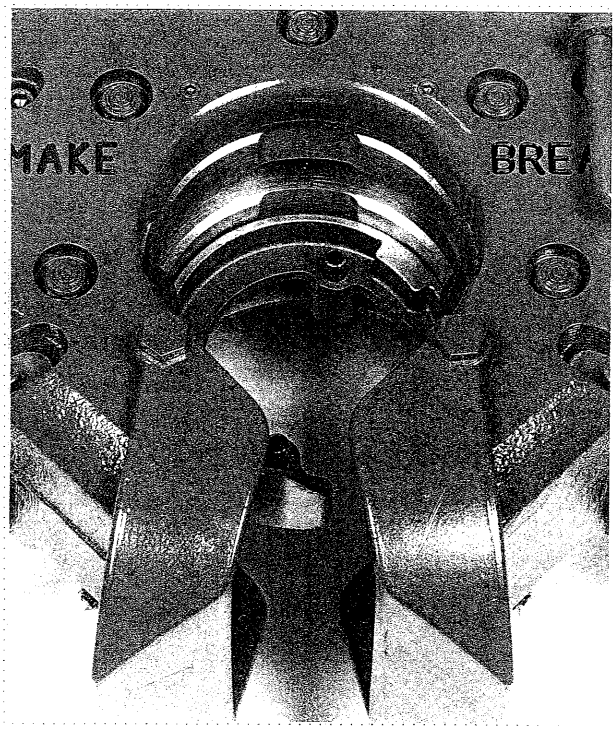

Fig. 10
Tong out of time, brake drum not aligned

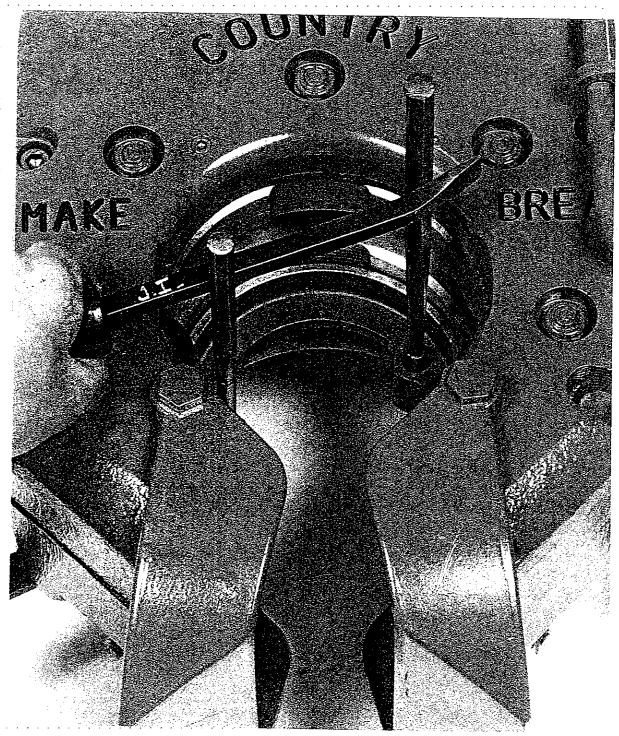

Fig. 11
Tong in time, brake drum aligned

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MAINTENANCE

INSPECTION

1. Inspect all throttle linkage for loose pins. Replace as needed.
2. Remove inner ring assembly. Check outer ring roller for wear.
3. Check outer ring frame rollers for wear by rotating outer ring with pry bar.
4. Inspect the bottom of the tong to inspect back-up support springs, door springs, gate bolts, etc.
5. Check torque pressure gauge by prying against one side of back-up wrench.
6. Inspect spring hanger assembly, check for wear on top and bottom caps. Replace if worn.

LUBRICATION

NOTE: OIL COUNTRY ROD TONG IS MANUFACTURED WITH SEALED BEARINGS AND PACKED WITH SEALED BEARINGS AND GREASE AT THE FACTORY. MOST INTERNAL PARTS RECEIVE AMPLE LUBRICATION FROM THE OIL OFF THE SUCKER RODS. DURING REPAIR AND INSPECTION, THE TONG SHOULD BE PACKED WITH GREASE AND THE WORN BEARINGS SHOULD BE REPLACED.

SAFETY PRECAUTIONS

Safety, based on technical skills and years of experience has been carefully built into your Rod Tong. Time, money, and effort have been invested in making your unit a safe product. The dividend you realize from this investment is your own personal safety.

It should be remembered, however, that power-driven equipment is only as safe as the man who is at the controls. Your are urged, as the operator of this equipment, to observed the following rules:

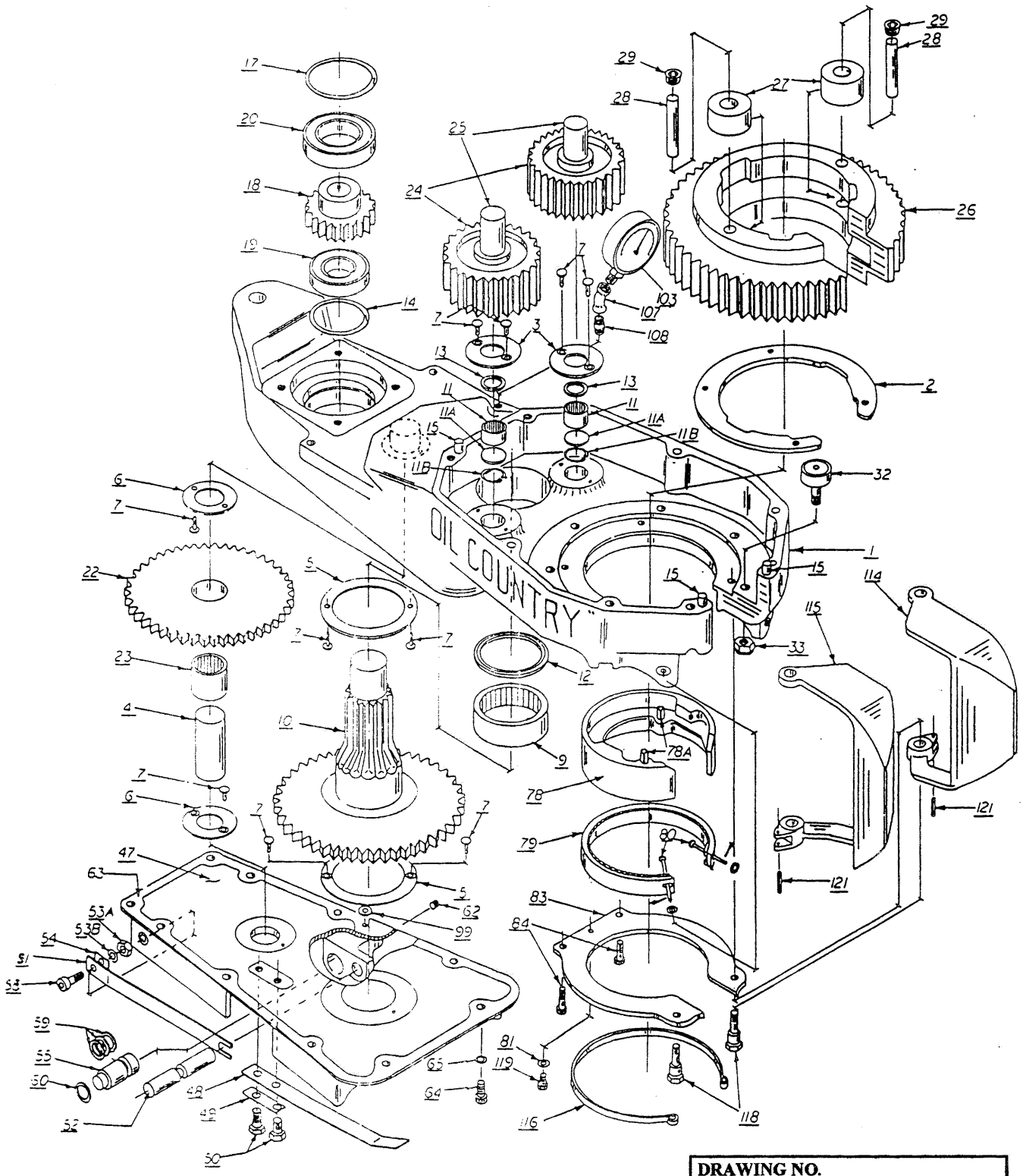
1. Operate the tong from the back-up line side only. (Does not apply to front control tongs.)
2. Never change a jaw or put hands within the rotating parts of the tong while tongs are connected to hydraulic hoses.
3. Never remove or operate the tong without the guard doors in place.
4. Do not exceed the maximum pressure for which this system is rated.
5. Always use a back-up line for all tong operations.
6. Keep loose fitting clothing away from the rotating parts of the tong.

HOW TO ORDER PARTS

When ordering parts for your Rod Tong, refer to the following Parts List. Use schematic drawing to locate the correct item number, and then obtain part number.

When ordering include the following:

1. Quantity required
2. Part Number (**NOT** Item No.)
3. Part Name
4. Tong Model Number
5. Tong Serial Number



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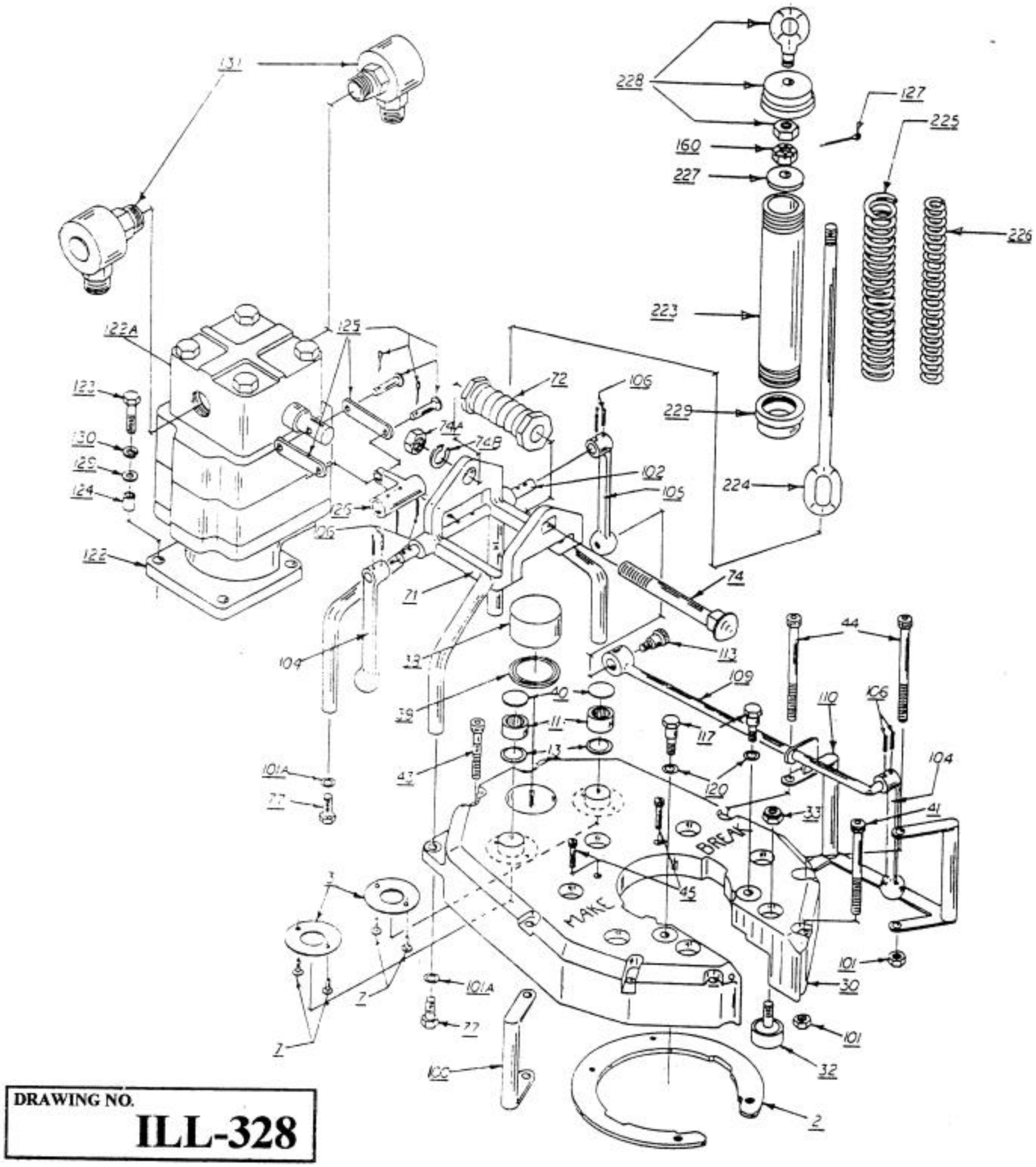

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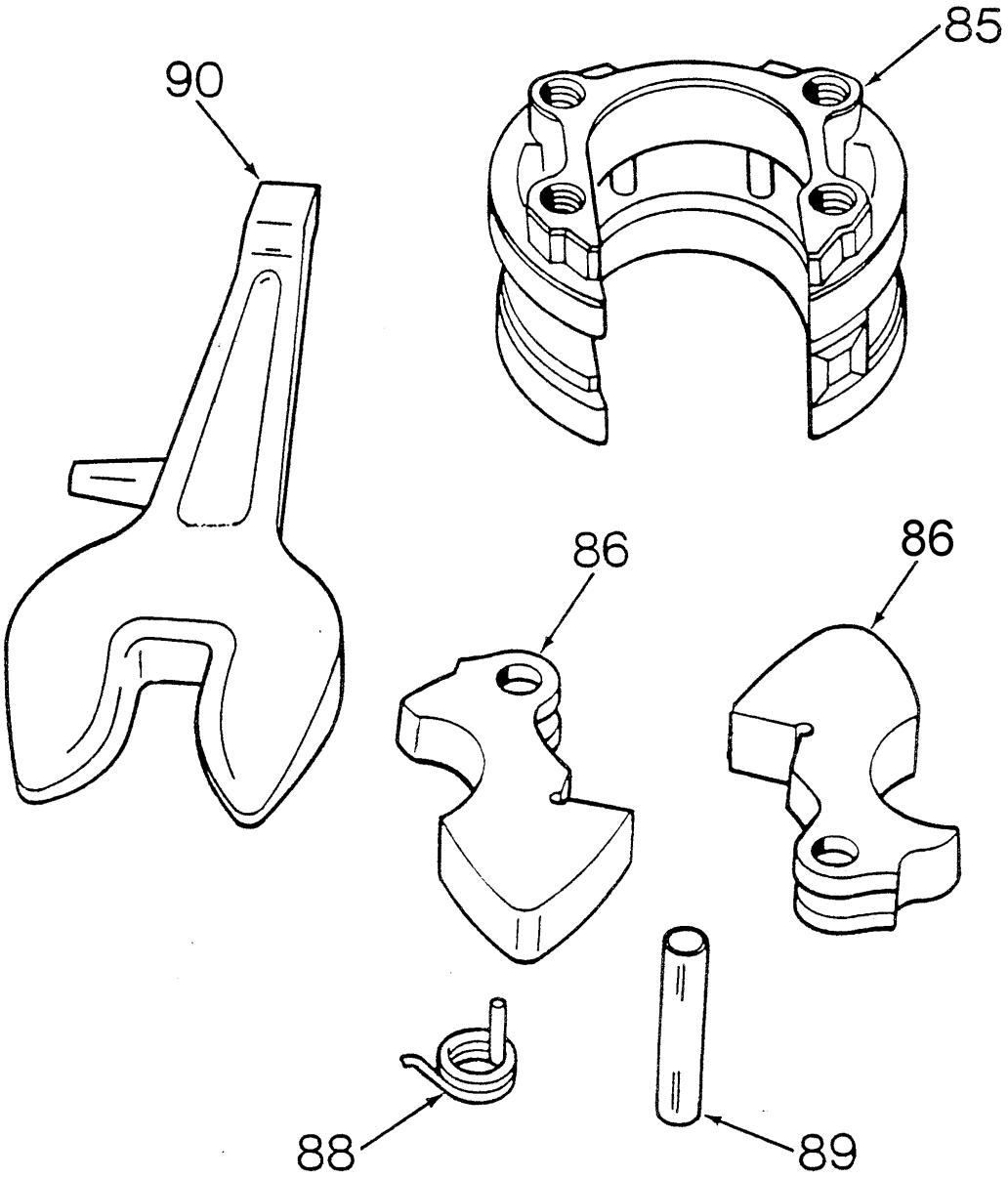

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ROD TONG REPLACEMENT PARTS LIST

REF. NO.	PART NUMBER	NO. REQ	DESCRIPTION	WGT LBS
	27841		**M20 Rod Tong Assembly**	
	27841-1		**M40 Rod Tong Assembly**	
	27841-5		**M50 Rod Tong Assembly**	
	27841-75		**M75 Rod Tong Assembly**	
	27841-101		**M20 Rod Tong Assembly With Relief Valve**	
	27841-102		**M40 Rod Tong Assembly With Relief Valve**	
	27841-103		**M50 Rod Tong Assembly With Relief Valve**	
	27841-104		**M75 Rod Tong Assembly With Relief Valve**	
	27842		**Frame Assembly**	
1	27862	1	Frame	26.00
2	27868	2	Outer Ring Wear Ring	1.25
3	27869	4	Idler Gear Thrust Washer	.50
4	27870	1	Cluster Gear Shaft	.75
5	27871	2	Second Reduction Washer	.25
6	27872	2	Cluster Gear Thrust Washer	.50
7	27873	14	Thrust Washer Retainer Pin	.06
9	942392-112	1	2nd Reduction Gear Lower Needle Bearing	.30
10	27851-1	1	2nd Reduction Gear	13.63
11	942392-53	4	Idler Gear Shaft Bearing	.30
11A	29888	2	Idler Gear Shaft Disc	.13
11B	992253-137	2	Idler Gear Shaft Disc Snap Ring	.25
12	940287-819	1	2nd Reduction Gear Shaft Seal	.10
13	940287-12	4	Idler Gear Shaft Lower Seal	.10
14	944524-244	1	Motor Pinion Retaining Ring	.10
15	992082-74	3	Frame to Cover Dowel	.25
17	944524-295	1	Motor Pinion Retaining Ring	.10
	27850	**1**	**Motor Pinion Assy (ref. 18-21) (M-20 and M-40)**	3.00
	28614	**1**	**Motor Pinion Assy (ref. 18-21) (M-50 & M-75)**	3.00
18	27921	1	Motor Pinion Gear **(M-20 and M-40)**	.13
18	29197	1	Motor Pinion Gear **(M-20 and M-75)**	1.50
19	979384-8	1	Motor Pinion Lower Bearing	1.00
20	979384-10	1	Motor Pinion Upper Bearing **(M-20 and M-40)**	.25
20	28610	1	Motor Pinion Bearing Adapter Ring **(M-50 & M-75)**	.38
	27847	**1**	**Cluster Gear Assy (ref. 22 and 23 (M-20 and M-40)**	7.00
	28613	**1**	**Cluster Gear Assy (ref. 22 and 23 (M-50 & M-75)**	7.00
22	27922	1	Cluster Gear **(M-20 and M-40)**	6.13
22	29196	1	Cluster Gear **(M-50 only)**	6.50
23	942392-72	1	Cluster Gear Bearing	.25
	27846	**2**	**Idler Gear Assy**	5.13
24	27866	2	Idler Gear	5.13
25	27867	2	Idler Gear Shaft	.75
	30026	**1**	**Outer Ring Assy (ref. 26-29)**	**21.13**
26	30026-01	1	Outer Ring Gear	19.13
27	30027	2	Outer Ring Roller	.63
27	30027-75	2	Outer Ring Roller **(M-75)**	.60
28	30028	2	Outer Ring Roller Pin	.25

ROD TONG REPLACEMENT PARTS LIST

REF. NO.	PART NUMBER	NO. REQ	DESCRIPTION	WGT LBS
	27843	**1**	**Frame Cover Assy (ref. 30-45)**	
29	992081-04	2	Outer Ring Plug	.13
30	27874	1	Frame Cover	12.00
32	942453-11	14	Outer Ring Roller Frame	1.00
33	992116-10	14	Outer Ring Frame Roller Nut	.30
38	942393-84	1	2nd Reducing Gear Needle Bearing	.30
39	940286-318	1	2nd Reducing Gear Upper Seal	.10
40	944047-08	2	Frame Cover Snap-In Seal	.90
41	992019-17	3	Frame Cover Cap screw	.20
43	992019-10	2	Frame Cover Cap screw	.20
44	992019-20	3	Frame Cover Cap screw	.20
45	992015-06	2	Frame Cover Outer Wear Ring Cap screw	.20
	27844		**Gear Case Cover Assy**	11.50
47	27875	1	Gear Case Cover	11.00
48	27876	1	Back-Up Wrench Support Spring	.25
49	28007	1	Support Spring Plate	1.00
50	992003-03	2	Support Spring Cap screw	.40
51	27877	1	Back-Up Wrench Pivot Spring	.50
52	27878	1	Pivot Spring	.75
53	992019-07	1	Pivot Spring Cap screw	.20
53A	992164-05	1	Nut	.10
53B	992051-06	1	Lock Washer	.10
54	27909	1	Pivot Spring Retainer Plate	.38
55	27908	1	Torque Indicator Load Cell Piston	.13
59	992154-212	1	Load Cell Piston O-Ring	.10
60	992287-SC-212	2	Load Cell Back-Up Ring	.10
61	940288-471	1	Piston Seal	.10
62	992080-02	1	Load Cell Pipe Plug	.25
63	27918	1	Gasket-Gear Box Cover	.13
64	992019-06	11	Gear Case Cover Cap screw	.20
65	992160-08	11	Lock Washer	.10
	27852		**Hanger Assy (ref. 71-77)**	6.00
71	27852-1	1	Hanger	3.25
72	45019	1	Hanger Balancing Screw	2.00
74	992586-40	1	Hanger Balancing Screw Bolt	.07
74A	992162-09	1	Hanger Balancing Screw Nut	.20
74B	992587-16	1	Hanger Balancing Screw Washer	.25
77	992003-06	4	Hanger Cap screw	.25
78	**27848-200**	**1**	**Brake Drum Assy (includes 78A pins)**	2.75
78A	27884	2	Brake Drum Pin **(Was 992011-198)**	.06
79	27849-200	1	Brake Band	5.00
80	27861-2	1	Brake Band Anchor Pin Kit	
81	992155-02	1	Flat Washer	.10
83	27855	1	Brake Cover Plate	1.00
84	992015-09	2	Brake Cover Plate Cap screw	.20

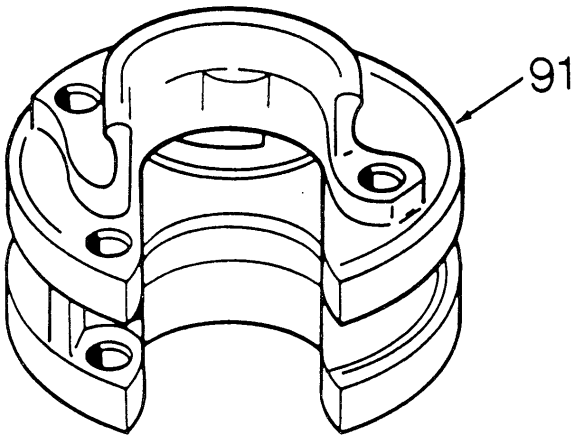
ROD TONG REPLACEMENT PARTS LIST

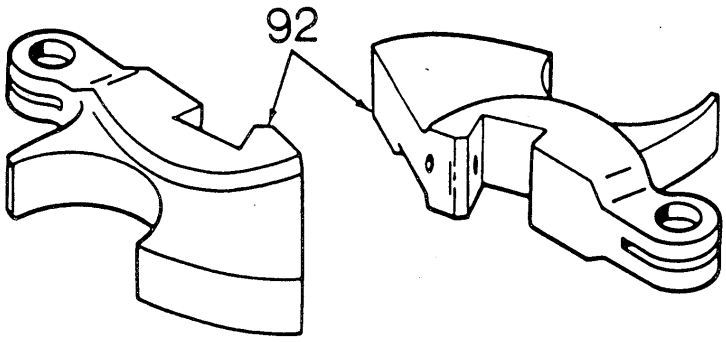
REF NO	PART NUMBER	NO REQ	DESCRIPTION	WGT LBS
	27899	**1**	**Inner Ring Assy, 5/8", 3/4", and 7/8" Rods With 1"Flats (ref. 85-89)**	6.50
85	27894	1	Inner Ring	5.00
86	27900	2	Jaw, 5/8", 3/4", 7/8" Plain For 1" Flats	5.00
88	27897	2	Jaw Spring	1.00
89	27722	2	Jaw Hinge Pin	.25
90	27902	1	Back-Up Wrench, 5/8" Rod	10.00
90	27903	1	Back-Up Wrench, 3/4" - 7/8" Rod	10.00
	27899-3	**1**	**Inner Ring Assy, 7/8" EL Rods with 1-1/8" Flats (ref 85-89)**	6.50
85	27894	1	Inner Ring **(ref. 85-89)**	5.00
86	27900-1	1	7/8" EL Jaw For 1 1/8" Flats	5.00
88	27897	2	Spring	1.00
89	27722	2	Latch Pin	.25
90	27903-1	1	Back-Up Wrench, 7/8" EL Rod	10.00
	27899-4	**1**	**Inner Ring Assy, 1" Rods W/ 1.312" Flats (ref. 85-89)**	6.50
85	27894	1	Inner Ring	5.00
86	32967	1	Jaw 1" For 1.312 Flats	1.38
88	27897	2	Spring	1.00
89	27722	2	Latch Pin	.25
90	27906	1	Back-Up Wrench, 1" Rod	10.00
	27899-1	**1**	**Inner Ring Assy, 1-1/8" Rod W/ 1.500 Flats (ref. 85-89)**	6.50
85	27894	1	Inner Ring	5.00
86	27905	1	Jaw 1-1/8" For 1.500" Flats	.13
88	27897	2	Spring	1.00
89	27722	2	Latch Pin	.25
	27899-6	**1**	**M-75 Inner Ring Assy, 1-1/8" Rod W/ 1.500 Flats (ref. 85-89)**	6.50
85	27894	1	Inner Ring	5.00
86	27975	1	Jaw 1-1/8" **(M-75) For 1.500 Flats**	1.38
88	27897	2	Spring	1.00
89	27722	2	Latch Pin	.25
90	27906	1	Back-Up Wrench, 1" Rod	10.00
90	27907	1	Back-Up Wrench, 1-1/8" Rod	10.00
99	992154-110	1	Frame Torque Indicator O-Ring	.10
100	27860	1	Frame Handle	.13
101	992501-11	6	Frame Cover Nut	.20
102	29783	1	Control Valve Shaft	.50
103	29143	1	Torque Indicator Gauge	4.00
	29192	**1**	**Front End Control Assy (ref. 104-113)**	4.00

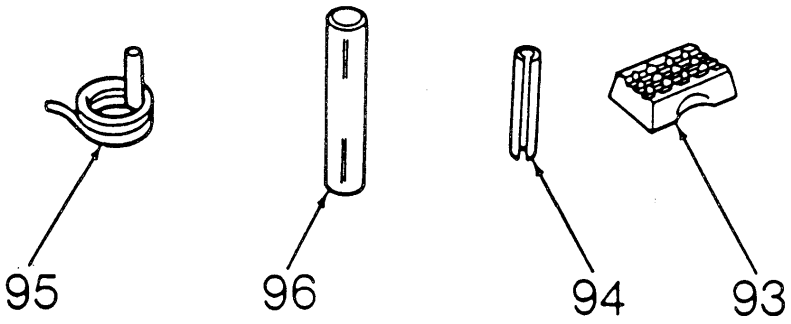
ROD TONG REPLACEMENT PARTS LIST

REF. NO.	PART NUMBER	NO. REQ	DESCRIPTION	WGT LBS
104	27853	2	Front End Control Valve Lever (Left)	.75
105	29188	1	Front End Control Valve Lever (Right)	.75
106	992011-96	8	Control Valve Lever Pin	.25
107	940072-14	1	Elbow	.25
108	940225-47	1	Nipple	.25
109	29189	1	Front End Control Connecting Bar	.75
110	29190	1	Front End Control Bracket	2.00
113	992218-04	1	Front End Control Shoulder Screw	.25
114	27856	1	Right Gate	2.13
115	27857	1	Left Gate	2.13
116	27858	1	Gate Spring	.25
117	32984	2	Top Gate Bolt	.06
118	32985	2	Bottom Gate Bolt	.13
119	992015-04	1	Gate Spring Caps crew	.20
120	939363-23	2	Gate Washer	.10
121	992011-58	2	Gate Roll Pin	.10
	31908		Hydraulic Drive Group **(M-20 and M-50)** (ref. 122-131)	
	31909		Hydraulic Drive Group **(M-40)** (ref. 122-131)	
122	**970400-6**	**1**	**25 X Motor & Valve Assy (M-20 and M-50)**	
122	**970400-7**	**1**	**25 X Motor & Valve Assy (M-40)**	47.00
122	**30020-200**	**1**	**25 X Motor & Valve Assy (M-20 & M-50 For Relief Valve)**	
122	**30021-200**	**1**	**25 X Motor & Valve Assy (M-40 & M-75 For Relief Valve)**	
122A	**970499-1041**	**1**	**Control Valve Assy For 25 X Motor**	47.00
123	992003-07	4	Cap screw	.25
124	45098	4	Bushing	.06
125	31783-2	1	Valve Link Kit	.50
126	31784	1	Valve Crank	.08
127	992012-45	1	Shank Cotter	.10
129	992155-04	8	Washer	.25
130	992160-08	4	Lock Washer	.10
131	45407-203	2	Swivel Joint	1.00
	45023-100		**Suspension Spring Assy**	6.75
160	992213-15	1	Shank Nut	.20
223	45223	1	Housing	6.75
224	45224	1	Shank	4.00
225	45225	1	Outer Spring	5.50
226	45226	1	Inner Spring	2.00
227	45227	1	Washer	
228	**45228-200**	**1**	**Upper Cap Assy**	
229	45229	1	Lower Cap	1.13

* Not Referenced
** Not shown







TITLE	Oil Country MANUFACTURING INC. VENTURA, CA USA
INNER RING ASSEMBLIES, TUBING	SIZE A | SHEET 1 OF 1 | REV
PART NO.	DRAWING NO. ILL-298

OIL COUNTRY
INNER RING ASSEMBLIES,TUBING
SEE ILLUSTRATION # 298

1.050" TUBING

REF NO.	PART NO.	QTY. REQ'D	DESCRIPTION
----	**30718-100**	**1**	**INNER RING ASSEMBLY FOR 1.050" TUBING**
91	28686-2	1	INNER RING FOR 1.050" TUBING
-----	30719-200	2	JAW ASSEMBLY (ref 92-94)
92	30694	1	JAW
93	30726	1	DIE
94	992011-138	1	DIE PIN
95	28729	2	SPRING
96	992195C-16-18	2	JAW HINGE PIN

1.315" TUBING

REF NO.	PART NO.	QTY. REQ'D	DESCRIPTION
-----	**30716-100**	**1**	**INNER RING ASSEMBLY FOR 1.315" TUBING**
91	28686-2	1	INNER RING FOR 1.315 TUBING
-----	30717-200	2	JAW ASSEMBLY (ref 92-94)
92	30694-1	1	JAW
93	30724	1	DIE
94	992011-138	1	DIE PIN
95	28729	2	SPRING
96	992195C-16-18	2	JAW HINGE PIN

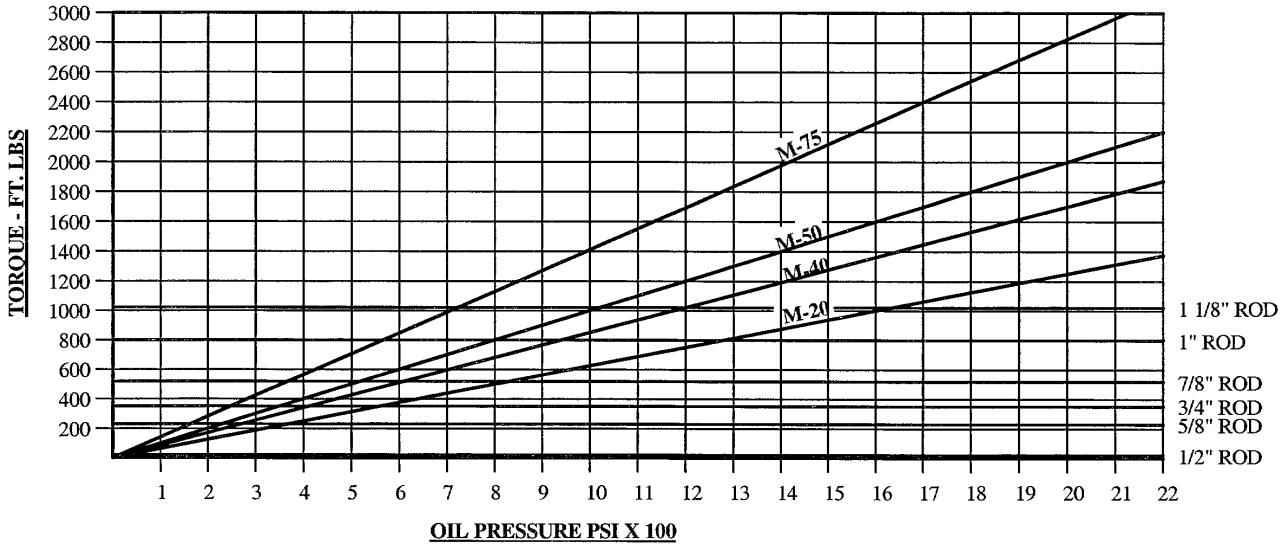
1.660" TUBING

REF NO.	PART NO.	QTY. REQ'D	DESCRIPTION
-----	**30714-100**	**1**	**INNER RING ASSEMBLY FOR 1.660" TUBING**
91	28686	1	INNER RING FOR 1.660-1.900 TUBING
-----	30715-200	2	JAW ASSEMBLY (ref 92-94)
92	30694-2	1	JAW
93	30723	1	DIE
94	992011-138	1	DIE PPIN
95	28729	2	SPRING
96	992195C-16-18	2	JAW HINGE PIN

1.900" TUBING

REF NO.	PART NO.	QTY. REQ'D	DESCRIPTION
-----	**30712-100**	**1**	**INNER RING ASSEMBLY FOR 1.900" TUBING**
91	28686	1	INNER RING FOR 1.660-1.900 TUBING
-----	30713-200	2	JAW ASSEMBLY (ref 92-94)
92	30694-3	1	JAW
93	30721	1	DIE
94	992011-138	1	DIE PPIN
95	28729	2	SPRING
96	992195C-16-18	2	JAW HINGE PIN

MODELS M-20 THROUGH M-75 POWER SUCKER ROD TONGS



SPECIFICTIONS

MODEL	PART NO.	MAXIMUM TORQUE		MAXIMUM SPEED (RPM)	HYD REQUIREMENT
		FT LBS	NM		
M-20	27841	1290	1750	130	2000 PSI @ 30GPM 137.6 BARS @ 144 LPM
M-40	27841-1	1620	2197	105	
M-50	27841-5	2090	2767	80	
M-75	27841-75	2830	3838	65	

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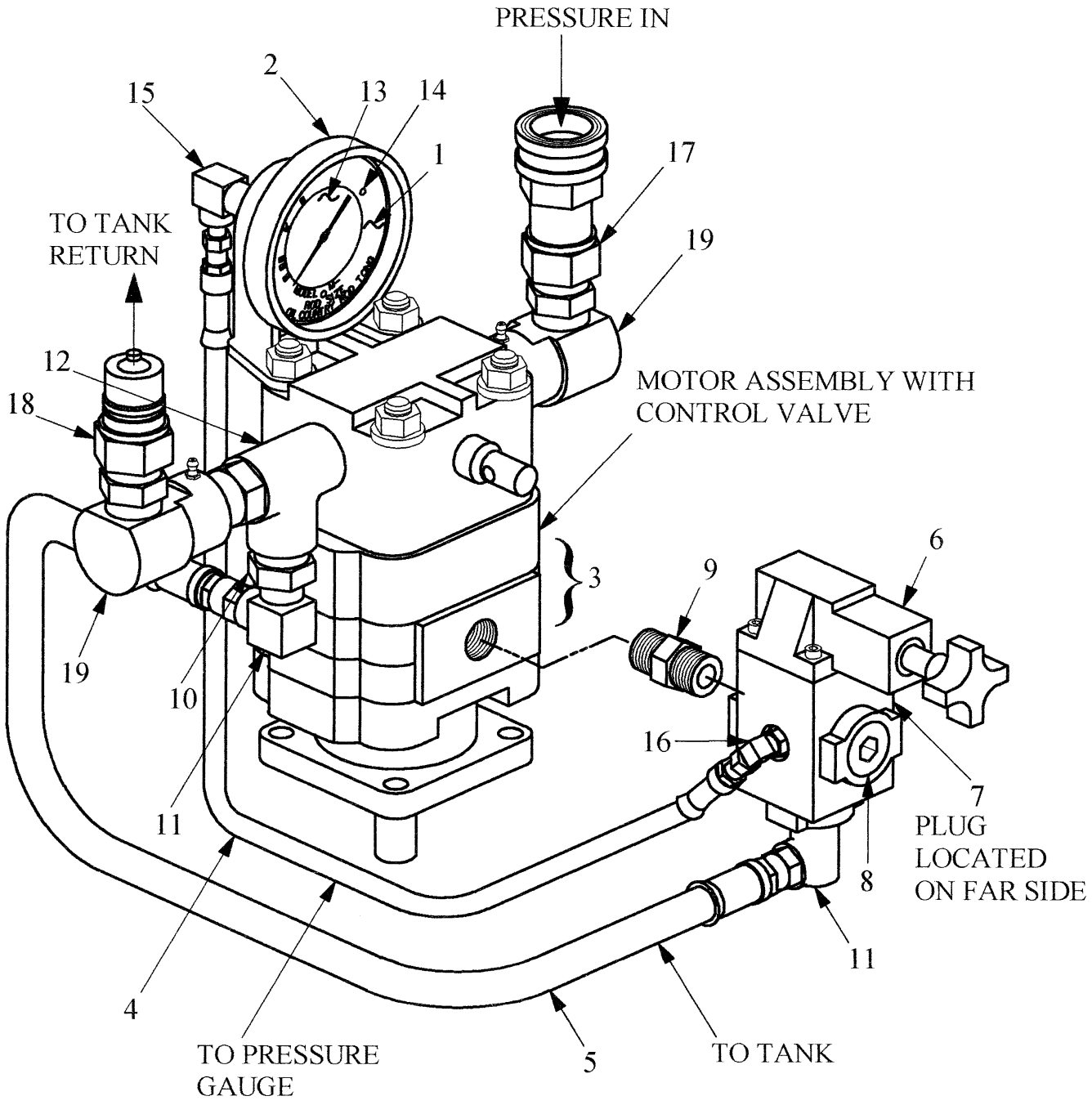
TITLE

GRAPH FOR MODELS M-20 THROUGH M-75 POWER SUCKER ROD TONGS

Weatherford VENTURA, CA

SIZE	SHEET	REVISION DATE	REV
A	SHEET 1 OF 1	09-08-03	B

DRAWING NO. ILL-095



REV	REV CODE	BY
REVISIONS		

TITLE **ROD TONG MOTOR/PIPING, RELIEF VALVE OPERATION**

PART NO. **27880-200,-201, -202,-203**

Oil Country MANUFACTURING INC.
VENTURA, CA

SIZE	SHEET	REV
A	1 OF 1	

DRAWING NO. **ILL-237**

RELIEF VALVE MOTOR OPTIONS
& PIPING GROUP FOR ROD TONG M20, M40, M50, M70
PARTS LIST FOR ILL-237

ITEM	PART NO.	QTY	DESCRIPTION
-------	**27880-201**	**1**	**RELIEF VALVE MOTOR & PIPING GROUP W/ M20 ROD TONG (ITEMS 1-16)**
-------	**27880-200**	**1**	**RELIEF VALVE MOTOR & PIPING GROUP W/ M40 ROD TONG (ITEMS 1-16)**
-------	**27880-202**	**1**	**RELIEF VALVE MOTOR & PIPING GROUP W/ M50 ROD TONG (ITEMS 1-16)**
-------	**27880-203**	**1**	**RELIEF VALVE MOTOR & PIPING GROUP W/ M75 ROD TONG (ITEMS 1-16)**
1	27841-M20	1	TORQUE INDICATOR PLATE: M20 ROD TONG
1	27841-M40	1	TORQUE INDICATOR PLATE: M40 ROD TONG
1	27841-M50	1	TORQUE INDICATOR PLATE: M50 ROD TONG
1	27841-M75	1	TORQUE INDICATOR PLATE: M75 ROD TONG
2	27883-200	1	ROD TONG GAUGE HOUSING: WELDMENT
3	30020-200	1	M20/ M50 ROD TONG HYDRAULIC MOTOR F/ RV: SUBASSY
3	30021-200	1	M40/M75 ROD TONG HYDRAULIC MOTOR F/ RV: SUBASSY
4	700B-04-019-02	1	HYDRAULIC HOSE
5	700B-08-019-02	1	HYDRAULIC HOSE
6	943972-46	1	RELIEF VALVE
7	992080-03	1	DRYSL PRESSURE PLUG
8	992081-06	1	FLSHSL PRESSURE PLUG
9	992131-S-12-12	1	NPT HEX NIPPLE ADAPTER:
10	992131-S-16-12	1	NPT HEX NIPPLE ADAPTER
11	992141-S-12-8	2	FL 90 ADAPTER
12	992151-S-16-16	1	RUN TEE ADAPTER
13	992171-01	1	3000 PSI/ BAR GAUGE
14	992204-04	3	FILLISTER HEAD SCREW
15	992344-S-04-04	1	90° ADAPTER
16	992475-S-04-04	1	90 FL ADAPTER
*17	992285-FH-16-16		FEMALE QUICK DISCONNECT (AEROQUIP)
*18	992285-MH-16-16		MALE QUICK DISCONNECT (AREOQUIP)
*19	45407-203	2	SWIVEL JOINT
***NOTE: THESE COMPONENTS NOT INCLUDED WITH ASSEMBLIES**			

ROD TONG
SPARE PARTS LIST FOR ONE YEAR'S OPERATION

PART NO.	DESCRIPTION	QTY.
27849-200	Brake Band	2
27861-2	Brake Band Anchor Kit	4
27884	Brake Drum	1
942453-11	Cam Followers	14
27876	Backup Wrench Support Spring	1
27858	Gate Spring	1
30027	Outer Ring Roller	2
27897	Rod Jaw Spring	6
992011-58	Gate Roll Pin	2

ROD TONG
SPARE PARTS LIST FOR TWO YEAR'S OPERATION

PART NO.	DESCRIPTION	QTY.
27849-200	Brake Band	4
27861-2	Brake Band Anchor Kit	8
27884	Brake Drum	2
942453-11	Cam Followers	28
27876	Backup Wrench Support Spring	2
27858	Gate Spring	2
30027	Outer Ring Roller	4
27897	Rod Jaw Spring	12
992011-58	Gate Roll Pin	4
27868	Wear Ring	2
27878	Pivot Pin	2
30028	Outer Ring Roller Pin	2
992011-58	Gate Roller in	6